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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/660,707

09/12/2003

Seiji Okawara

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EXAMINER

HANDAL, KAITLY V

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/20/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/660,707	Applicant(s) OKAWARA, SEIJI	
	Examiner Kaity Handal	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/03; 9/8/06; 1/13/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I (claims 1-14) in the reply filed on 9/25/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

The abstract of the disclosure is objected to because it contains the abbreviation "PMs". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 6, 9 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the porosity" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higuchi et al. (US 4,340,403) in view of Tonkovich et al. (US 2003/0007904 A1) and in view of (Chen (US 2003/0021745 A1).

With respect to claims 1 and 3, Higuchi teaches filter catalyst for purifying exhaust gases comprising: a honeycomb structure (Fig. 5) including: inlet cells (2a) clogged on the downstream side of the exhaust gases (as illustrated); outlet cells (2b) neighboring the inlet cells (2a) and clogged on the upstream side of the exhaust gases (as illustrated); filter cellular walls (3) demarcating the inlet cells (2a) and outlet cells (2b) (as illustrated).

Higuchi fails to teach wherein said filter cellular walls having pores of an average pore diameter of from 20 to 40 μm and having a porosity of 60-80%. Tonkovich teaches catalyst formed on a honeycomb/(porous support) having pores of an average pore diameter of from 20 to 40 μm and having a porosity of 60-80% (page 2, paragraph [0027], lines 1-19) in order to provide a honeycomb support having low pressure drop and enhanced thermal conductivity over conventional supports (page 2, paragraph [0027], lines 27-31).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a honeycomb support having an average pore

diameter of from 20 to 40 μm and having a porosity of 60-80% in Higuchi's filter apparatus, as taught by Tonkovich, in order to provide a honeycomb support having low pressure drop and enhanced thermal conductivity over conventional supports.

Higuchi teaches wherein a catalytic layer is formed on the filter cellular walls (col. 1, lines 33-49), but he fails to provide details on the specifics of the catalyst layers. Chen teaches a NO_x trap catalyst wherein a catalytic layer is formed on a filter cellular walls/(honeycomb carrier) and on the inside surface of the pores/(honeycomb carrier) (page 7, paragraph [0063], lines 9-13), and having: a first catalyst support consisting of porous oxide (page 6, paragraph [0055]) with an average particle diameter of 1 μm or less (page 14, paragraph [0215], lines 18-22); a second catalyst support consisting of the porous oxide (page 6, paragraph [0055]) with an average particle diameter within a range from 1/20 to 1/2 of the average pore diameter of the filter cellular walls/ (1-20 μm) (page 14, paragraph [0216], lines 21-26); and a catalytic ingredient (page 14, paragraph [0216], lines 26-31); and the catalytic layer having parts where the second catalyst support exists and other parts where the second catalyst support does not exist (which would be obvious that the catalytic layer would have parts where the second catalyst support exists and other parts where the second catalyst support does not exist), and it would be obvious that the catalytic layer would have uneven surfaces due to have varying particle sizes within the layers of less than 10 μm (page 14, paragraph [0216], lines 21-26) in order to provide a thermally stable and layered catalyst composite capable of maintaining long term activity and oxidizing hydrocarbons and carbon monoxide effectively and

reducing nitrogen oxide compounds (page 4, paragraph [0046], lines 1-3 and page 5, lines 1-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the catalyst layer of Higuchi with catalyst layer of Chen as set forth above in order to provide a thermally stable and layered catalyst composite capable of maintaining long term activity and oxidizing hydrocarbons and carbon monoxide effectively and reducing nitrogen oxide compounds.

With respect to claim 2, Chen further teaches wherein the second catalyst support is loaded on the layer comprising the first catalyst support (page 7, paragraph [0063], lines 9-13).

With respect to claims 4-6, Chen further teaches wherein the catalytic layer contains an NO_x sorbent selected from alkali metals, alkali earth metals or rare-earth elements, which is loaded at least on one of the first catalyst support and the second catalyst support (page 6, paragraph [0059], lines 1-6).

With respect to claims 7-10, given that all structural limitations are present in the prior art of Higuchi as modified by Tonkovich and Chen, then the filter catalyst is capable of performing as claimed.

With respect to claims 11-14, Chen further teaches wherein the catalytic layer contains an NO_x-adsorbing member, comprising a powder including at least zirconia and ceria, and noble metal loaded on said powder (page 5, paragraph [0049]).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH

12/11/2006


Glenn Caldarola
Supervisory Patent Examiner
Art Unit 1764